

CLAIMS

We claim:

9. A method of making a microporous breathable film comprising the steps of:

selecting a film forming a polyolefin precursor, said polyolefin precursor having polypropylene as a majority component;

blending said film forming polyolefin precursor with a filler which is a rigid material having a low affinity for the polyolefin precursor and a lower elasticity than the polyolefin precursor, and having a non-smooth hydrophobic surface such that the filler is about 30% to about 70% of the combined weight of the filler and the polyolefin precursor;

combining said polyolefin precursor/filler blend with an additive selected from a group including a plastomer, an elastomer, a styrenic block copolymer or a combination thereof; and

stretching the combination of said blended polyolefin/filler blend and said additive to form a microporous breathable film having a dart impact strength in the range of from about 100 to about 300 grams,

wherein said film has a WVTR in the range of from about 100 to about 10,000 f/m²/24 hr, and

wherein said film has an MD or TD elongation in the range of from about 150% to about 550%.

10. The method as defined in Claim 9 wherein said step of stretching the combination uses interdigitating grooved rollers.

11. The method as defined in Claim 10 wherein said interdigitating grooved rollers are positioned in a direction selected from the group consisting of machine direction (MD), transverse direction (TD), and a combination thereof.

12. The process as defined in Claim 9 wherein said film forming polyolefin precursor is selected from the group consisting of an impact copolymer polypropylene, a random copolymer polypropylene, and a combination thereof.

13. The method as defined in Claim 9 wherein said filler is selected from the group consisting of calcium carbonate, talc, clay, kaoline, silica, diatomaceous earth, magnesium carbonate, barium carbonate, magnesium sulfate, barium sulfate, calcium sulfate, aluminum hydroxide, zinc oxide, magnesium hydroxide, calcium oxide, magnesium oxide, titanium oxide, alumina, mica, glass powder, zeolite, silica clay and combinations thereof.

14. The method as defined in Claim 10 further including the step of heat laminating the microporous breathable film having polypropylene as a major component of the polyolefin precursor to a non-woven having polypropylene as a majority component a precursor polyolefin used to form the non-woven.

15. The method as defined in Claim 14 further including the step of forming said combination of microporous breathable film and non-woven polymer into an article selected from the group consisting of diapers, adult incontinence devices, feminine hygiene articles, surgical garments, surgical drapes, sportswear, industrial apparel, house wrap, filtration media, roofing components, and controlled atmosphere packaging.